

**PLANAR INVERTED F ANTENNAS INCLUDING CURRENT
NULLS BETWEEN FEED AND GROUND COUPLINGS AND
RELATED COMMUNICATIONS DEVICES**

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ABSTRACT

A planar inverted F antenna may be configured for operation at an operating frequency band, and the planar inverted F antenna may include first, second, and third antenna segments, a reference voltage coupling, and a feed coupling. The first and second antenna segments may be separated by at least approximately 3 mm, and the
10 third antenna segment may couple the first and second antenna segments. The reference voltage and feed couplings may both be provided on the first antenna segment, and a current null may be present between the feed and reference voltage couplings at the operating frequency band. Related communications devices are also discussed.